Customer No. 020991

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SAMPLING TECHNIQUE FOR DIGITAL BEAM FORMER

NOTE: Specification submitted 10/5/01 contains continuation data. please see page 1 attached of in specification submitted 10/5/01.

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RELATED APPLICATION

[0001] The present application claims priority to provisional application Serial Number 60/266,813 filed on February 5, 2001, the entire contents of which are incorporated herein by this reference.

TECHNICAL FIELD

[0002] The present invention relates generally to multiple beam communication systems and more particularly, to a method and apparatus for sampling a received signal that is manipulated by a digital beam former.

BACKGROUND OF THE INVENTION

[0003] Current commercial mobile satellite communication systems having conventional multiple beam architectures, which use multi-beam phased array antennas, incorporate digital beam forming (DBF) techniques. DBF phased array antennas are very useful in forming multiple simultaneous beams covering a large field of view (FOV).

[0004] Typical mobile satellite payloads have a DBF phase array antenna. The phase array antenna includes a plurality of receive array elements for receiving communication signals. Each receive array element is connected to several components for signal-conditioning the communication signals prior to connecting to a digital beam forming network. The receive array elements are connected to a plurality of low noise amplifiers (LNAs), by which the received signal is amplified. The LNAs are connected to a plurality of downconverters. The downconverters convert a high frequency received signal to an analog baseband or intermediate